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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/526,669

10/26/2005

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040894-7191

3155

9629 7590 11/23/2009
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EXAMINER

BARROW, AMANDA J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/526,669 | Applicant(s) HOMMA ET AL. | |
| | Examiner AMANDA BARROW | Art Unit 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-26 is/are pending in the application.
- 4a) Of the above claim(s) 6-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Status of Application

1. The Applicant's amendment filed on 8/24/2009 was received. Claims 1, 2, 4 and 5 were amended. Claim 3 was cancelled without prejudice or disclaimer. Claims 6-26 were restricted out by the Examiner and withdrawn by the Applicant.

2. The texts of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on 1/8/2009.

Claim Rejections - 35 USC § 103

3. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Kudo et al. on claims 1-5 are withdrawn as the claims have been amended or cancelled.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US Patent 6,339, 528 B1).

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Regarding claim 1, Lee discloses a metal oxide electrode comprising manganese oxide powder, conductive material and binder wherein the conductive material is conductive carbon (column 3, lines 14-23). Lee discloses that the activated carbon is one with a specific surface area of 1500-3000 m²/g (column 3, lines 36-40) and that it can be a fine powder (column 7, lines 62-66). Lee discloses that one of the methods of making this material is one in which potassium permanganate is added to the conductive carbon solution and is absorbed on the surface of the conductive carbon which is then mixed with manganese acetate solution to form the manganese oxide (column 4, line 59 through column 5, line 10).

Therefore, it is the position of the Examiner that such a process would inherently render the manganese oxide uniformly coated on the carbon fine powder. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. *In re Robertson*, 49 USPQ2d 1949 (1999).

Regarding claim 5, Lee discloses that the manganese oxide has a crystal structure that is of an amorphous phase (column 4, lines 48-58).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,339, 528 B1) as applied to claims 1 and 5 above.

Regarding claim 4, Lee discloses that the specific surface area of the carbon fine powder is 1500-3000 m²/g (column 3, lines 36-40 and column 7, lines 61-66). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d.257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*,

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919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990); *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997). See MPEP 2144.05.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,339, 528 B1) as applied to claims 1,5 above, and further in view of Kudo et al. (Amorphous V2O5/Carbon composites as electrochemical supercapacitor electrodes, 2002, Solid State Ionics, 152-153, 833-841).

Regarding claim 2, Lee does not disclose the thickness of the manganese oxide coating; however, Kudo discloses a similar invention in which carbon powder is coated with vanadium oxide and that the thickness of the coating is 50 nm (see page 840, left side, figure 11). Kudo also discloses that optimizing the thickness of the vanadium oxide to about 5 nm would lead to a homogenous coating and that homogeneously covering the carbon surface with the vanadium oxide gel would improve the performance of the composite electrode (see page 841, paragraph 1).

Therefore, it would have been obvious to one of ordinary in the art to produce a thin manganese oxide coating of about 5 nm onto the carbon powder of Lee, because Kudo et al. teach a homogenous coating can be achieved by modifying the coating thickness. The discovery of an optimum value of a known result effective variable, without producing any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05).

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7. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo et al. (Amorphous V₂O₅/Carbon composites as electrochemical supercapacitor electrodes, 2002, Solid State Ionics, 152-153, 833-841) in view of Aoyama et al. (WO 02/21617 A1) (abstract only).

Regarding claims 1, 2, 4 and 5, Kudo discloses a carbon fine powder with a high specific surface area coated with a thin layer of vanadium oxide (see page 835, paragraph 1 and page 839, Discussion paragraph 1). Kudo further discloses the specific surface area of the carbon fine powder is 61m²/g (see page 834, section 2.2, paragraph 1) and the metal oxide (V₂O₅) in the thin film layer has a crystal structure of an amorphous phase (see abstract).

Kudo teaches that optimizing the thickness of the vanadium oxide to about 5 nm would lead to a homogenous coating. Kudo also teaches that homogeneously covering the carbon surface with the vanadium oxide gel would improve the performance of the composite electrode (see page 841, paragraph 1). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d.257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990); *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed Cir. 1997). See MPEP 2144.05. Therefore, a prima facie case of obviousness exists as the claimed range overlaps with the thickness taught by the prior art.

Kudo fails to teach that the coating can be made of manganese oxide; however Aoyama discloses an electrode material in which an electroconductive material is mixed and coated with an oxide of a metal element belonging to Group 3 to 12 of the fourth to sixth period of the Periodic Table (abstract). Manganese is one of the elements within this group.

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The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR International Co. v. Teleflex Inc.*, 550 U.S., 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, B.). Therefore, it would have been obvious to a person of ordinary skill in the art to substitute manganese oxide for vanadium oxide in the invention of Kudo as Aoyama discloses a similar invention in which manganese can be used for this purpose (abstract).

Response to Arguments

8. Applicant's arguments with respect to claims 1, 2, 4 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMANDA BARROW whose telephone number is (571)270-7867. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AMANDA BARROW/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795